

# ALBERT GRAN ALCOZ

<b>Contact Information</b>	35 Gloriastrasse, 8092 Zürich Switzerland <i>Phone:</i> +34 627 545 743 +41 76 699 92 57 <i>Email:</i> galberto@ethz.ch <i>Website:</i> <a href="https://nsg.ee.ethz.ch/people/albert-gran-alcoz/">https://nsg.ee.ethz.ch/people/albert-gran-alcoz/</a>
<b>Research Interests</b>	Computer Systems and Networking: At the crossroads of Network Security, Machine Learning and Programmability
<b>Education</b>	<b>ETH Zürich</b> PhD, Electrical Engineering and Information Technology, Ongoing. Advised by Prof. Dr. Laurent Vanbever.  <b>ETH Zürich</b> Master's Thesis, Electrical Engineering and Information Technology, 2018. Advised by Prof. Dr. Laurent Vanbever. GPA: 10/10 with Honors.  <b>Universitat Politècnica de Catalunya</b> M.Sc. Telecommunications Engineering, 2018. GPA: 9.59/10.  <b>Georgia Institute of Technology</b> Bachelor's Thesis, Electrical and Computer Engineering, 2016. Advised by Prof. Dr. Ian Akyildiz. GPA: 9.5/10.  <b>Universitat Politècnica de Catalunya</b> B.Sc. Telecommunications Engineering, 2016. GPA: 8.11/10.
<b>Industry Experience</b>	<b>IBM</b> January 2017 - July 2017 <i>Software Engineering Intern</i> Designed and implemented software solutions for the next generation banking centers, self-service, and digital channels, taking advantage of the IBM cloud facilities and its cutting-edge cognitive technologies.  <b>Imagine Creativity Center</b> October 2016 - February 2017 <i>Dreamer Internet of Things Edition 2016-17</i> Creativity program to suggest world changing solutions in the area of Internet of Things. Invented SafeBeat, a smart-device that enhances traffic safety in our highways by guiding drivers on their journey and protecting them in case of emergency.  <b>CERN</b> September 2015 - January 2016 <i>Challenge Based Innovation Program</i> Collaborating with researchers at CERN to discover novel solutions for the future of humankind. Developed Well2Go, an IoT-based solution to improve access to safe water in developing countries. Project winner of the CBI 2015.  <b>Intel Corporation</b> March 2015 - March 2015 <i>Intel Software Services Group Staff</i> Managed the Tinker Zone area of the Intel Software Services booth at MWC 2015, preparing and performing demonstrations with the latest products and technologies.

**Academic Research Experience**     **University of California, Berkeley**     July 2023 - October 2023  
Visiting Scholar, Berkeley NetSys Lab  
Project: Multi-cloud QoS and Congestion Management

**ETH Zürich**     February 2018 - February 2019  
Scientific Assistant, Networked Systems Group  
Project: On Offloading Control Plane Applications to the Data Plane

**Universitat Politècnica de Catalunya**     September 2017 - February 2018  
Research Intern, Signal Theory and Communications  
Project: Next Generation 5G OFDM-Based Modulations for Intensity Modulation-Direct Detection (IM-DD) Optical Fronthauling

**Georgia Institute of Technology**     February 2016 - July 2016  
Visiting Student Researcher, Broadband Wireless Networking Lab  
Project: Towards Wireless Infrastructure-as-a-Service (WaaS) for 5G Software-Defined Cellular Systems

**Publications**     **Reducing P4 Language's Voluminosity using Higher-Level Constructs**

Albert Gran Alcoz, Coralie Busse-Grawitz, Eric Marty, Laurent Vanbever  
EuroP4 2022. Rome, Italy (December 2022).

**Aggregate-Based Congestion Control for Pulse-Wave DDoS Defense**

Albert Gran Alcoz, Martin Strohmeier, Vincent Lenders, Laurent Vanbever  
ACM SIGCOMM 2022. Amsterdam, Netherlands (August 2022).

**SP-PIFO: Approximating Push-In First-Out Behaviors using Strict-Priority Queues**

Albert Gran Alcoz, Alexander Dietmüller, Laurent Vanbever  
USENIX NSDI 2020. Santa Clara, CA, USA (February 2020).

**Experimental Assessment of 5-10Gbps 5G Multicarrier Waveforms with Intensity-Modulation Direct-Detection for PONs**

Samael Sarmiento, Albert Gran Alcoz, Jose A. Altabas, Marco Scalabroni, Salvatore Spadaro, Ignacio Garces, Jose A. Lázaro  
IEEE PSC 2018. Limassol, Cyprus, EU (July 2019).

**Towards Wireless Infrastructure-as-a-Service for 5G Software-Defined Cellular Systems**

Albert Gran Alcoz, Shih-Chun Lin, Ian F Akyildiz  
IEEE ICC 2017. Paris, France (May 2017).

**Talks**

**Reducing P4 Language's Voluminosity using Higher-Level Constructs**

ACM EuroP4 2022. Rome, Italy (December 2022).

**Programmable Packet Scheduling on Existing Hardware**

Princeton University. ECE 539B. Princeton, New Jersey (Online). (September 2022).

**Aggregate-Based Congestion Control for Pulse-Wave DDoS Defense**

ACM SIGCOMM 2022. Amsterdam, Netherlands (August 2022).

**DDoS-AID: Automated In-Network DDoS Mitigation as a First Line of Defense**

Armasuisse Cyber-Alp Retreat 2020. Gstaad, Switzerland (July 2020).

**SP-PIFO: Approximating Push-In First-Out Behaviors using Strict-Priority Queues**

Intel Corporation, Barefoot Networks. Santa Clara, CA, USA (February 28th, 2020).

**SP-PIFO: Approximating Push-In First-Out Behaviors using Strict-Priority Queues**

Stanford University, Platform Lab Seminar. Palo Alto, CA, USA (February 25th, 2020).

**SP-PIFO: Approximating Push-In First-Out Behaviors using Strict-Priority Queues**  
NSDI 2020. Santa Clara, CA, USA (February 25th, 2020).

**Towards Wireless Infrastructure-as-a-Service (WlaaS) for 5G SDN-Cellular Systems**  
IEEE ICC 2017. Paris, France (May 22nd, 2017).

**Teaching**      **Teaching Assistant**, Autumn 2022, Autumn 2021, Autumn 2020, Autumn 2019, Autumn 2018  
Advanced Topics in Communication Networks, ETH Zürich  
Taught by Prof. Laurent Vanbever

**Teaching Assistant**, Spring 2021, Autumn 2019  
Seminar in Communication Networks: *Learning, Reasoning and Control*, ETH Zürich  
Taught by Prof. Laurent Vanbever

**Supervised Thesis**      **Interactive Synthesis of Network Queries from Traffic Examples**  
Félicité Lordon, Master Thesis, Autumn 2021  
Co-supervised with Tibor Schneider.

**PACKS: A Practical Abstraction for Programmable Packet Scheduling**  
Nicole Wenzinger, Semester Thesis, Autumn 2021

**O4: A Higher-level Data-plane Programming Language**  
Eric Marty, Master Thesis, Spring 2021  
Co-supervised with Coralie Busse-Grawitz.

**Boosting QoE in Internet Applications using Programmable Packet Scheduling**  
Sharat Chandra Madanapalli, Academic Guest, Fall 2020  
Co-supervised with Alexander Dietmüller.

**Self-protecting Networks from IoT-based Attacks**  
Noa Melchior, Master Thesis, Spring 2020  
Co-supervised with Roland Meier.

**Improving Performance with Network-aware Scheduling Algorithms**  
Robin Berner, Semester Thesis, Autumn 2019  
Co-supervised with Alexander Dietmüller.

**Traffic-analysis Attacks Over Encrypted HTTP from the Data Plane**  
Jan Müller, Master Thesis, Autumn 2019  
Co-supervised with Roland Meier.

**Volunteering Activities**      **United Nations International Student Conference (UNIS-UN)**  
*Representative of Spain*  
Invited as one of the 300 students worldwide which took part in the 35th annual UNIS-UN conference, focusing on the evolving role of the Internet and its far-reaching implications in different areas of society. Debated on latest technological advances and discussed the role that new technologies should play in our societies.

**Fòrum de les Telecomunicacions i l'Electrònica**  
*President*  
Coordinated a team of 20+ volunteers to create events empowering student employment, with representation of 30+ enterprises and institutions and 200+ attendees.

### **Telecommunications Engineering Student Council**

*Student's Representative*

Elected as a member of the Telecommunications Student Delegation to represent the school's students community in university affairs during my undergraduate years.

### **Awards and Fellowships**

#### **La Caixa International Mobility Fellowship**

Barcelona, Spain, May 2018

#### **Swiss-European Mobility Programme Scholarship**

Zürich, Switzerland, February 2018

#### **Best Thesis Award on Information Systems, Cátedra Red.es**

Barcelona, Spain, June 2017

#### **UPC-ETSETB Recognition of Outstanding Academic Achievement**

Barcelona, Spain, January 2017

#### **Government of Spain (MECD) General Fellowship**

Barcelona, Spain, September 2012 - July 2016

#### **Executive Council of Catalonia Full Scholarship**

Barcelona, Spain, September 2016 - July 2018

### **References**

#### **Prof. Dr. Laurent Vanbever**

Information Technology and Electrical Engineering, ETH Zürich

ivanbever@ethz.ch

#### **Prof. Dr. Ian Akyildiz**

Electrical and Computer Engineering, Georgia Institute of Technology

ian@ece.gatech.edu

#### **Prof. Dr. Jose A. Lázaro**

Telecommunications Engineering, Universitat Politècnica de Catalunya

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